

the substitution of aspartic acid-12 to alanine, glutamic acid, asparagine, glutamine, lysine, arginine, serine, or threonine;

the substitution of tyrosine-15 to phenylalanine, alanine, glycine, serine, or threonine;

the substitution of tyrosine-17 to phenylalanine, alanine, glycine, glutamic acid, lysine, arginine, aspartic acid, serine, or threonine;

the substitution of histidine-35 to phenylalanine, alanine, glycine, glutamic acid, lysine, arginine, aspartic acid, tyrosine, phenylalanine, serine, or threonine;

the substitution of asparagine-38 to alanine, aspartic acid, glutamic acid, lysine or arginine; or

substitution at more than one of these amino acids.

5. (Twice Amended) The mutant SPE-C toxin of claim 4, wherein the amino acid substitution comprises:

the substitution of aspartic acid-12 to alanine,

the substitution of tyrosine-15 to alanine,

the substitution of tyrosine-17 to alanine,

the substitution of histidine-35 to alanine,

the substitution of asparagine-38 to aspartic acid; or

substitution at more than one of these amino acids.

6. (Amended) The mutant SPE-C toxin of claim 1, wherein the amino acid substitution comprises substitution of tyrosine-15 and asparagine-38.

8. (Amended) The mutant SPE-C toxin of claim 1, wherein the amino acid substitution comprises substitution of tyrosine-17 and asparagine-38.

10. (Amended) The mutant SPE-C toxin of claim 1, wherein the mutant has at least one of the following characteristics: the mutant has a decrease in mitogenicity for T-cells, the mutant does not enhance endotoxin shock, the mutant is not lethal compared to wild-type SPE-C, or the mutant is nonlethal but retains mitogenicity comparable to that of the wild type SPE-C toxin.

17. (Amended) The mutant SPE-C toxin of claim 1, wherein the amino acid substitution comprises:

the substitution of tyrosine-15 to alanine or serine;
the substitution of tyrosine-17 to alanine or serine;
the substitution of asparagine-38 to serine or alanine;
the substitution of tyrosine-15 to serine or alanine and of asparagine-38 to serine or alanine;
the substitution of tyrosine-17 to serine or alanine and of asparagine-38 to serine or alanine;
the substitution of aspartic acid-12 to alanine;
the substitution of asparagine-38 to aspartic acid; or
the substitution of tyrosine-15 to alanine, histidine-35 to alanine and asparagine-38 to aspartic acid.

19. (Amended) A mutant SPE-C toxin comprising acid substitutions at aspartic acid-12, tyrosine-15, tyrosine-17, histidine-35, or asparagine-38.

Please add and consider new claims 20-42 as follows

20. (New) A mutant SPE-C toxin comprising amino acid substitution at aspartic acid-12.
21. (New) The mutant SPE-C toxin of claim 20, comprising substitution of alanine for aspartic acid-12.
22. (New) A mutant SPE-C toxin comprising amino acid substitution at asparagine-38.
23. (New) The mutant SPE-C toxin of claim 22, comprising substitution of aspartic acid for asparagine-38.

24. (New) A mutant SPE-C toxin comprising amino acid substitutions at tyrosine-15 and at asparagine-38.

25. (New) The mutant SPE-C toxin of claim 24, comprising substitutions of serine or alanine for tyrosine-15 and aspartic acid for asparagine-38.

26. (New) The mutant SPE-C toxin of claim 24, comprising substitutions of serine for tyrosine-15 and serine for asparagine-38.

27. (New) The mutant SPE-C toxin of claim 24, further comprising amino acid substitution at histidine-35.

28. (New) The mutant SPE-C toxin of claim 27, comprising substitutions of alanine for tyrosine-15, alanine for histidine-35, and aspartic acid for asparagine-38.

29. (New) A mutant SPE-C toxin comprising amino acid substitutions at tyrosine-17 and at asparagine-38.

30. (New) The mutant SPE-C toxin of claim 29, comprising substitutions of serine or alanine for tyrosine-17 and aspartic acid for asparagine-38.

31. (New) The mutant SPE-C toxin of claim 29, comprising substitutions of serine for tyrosine-17 and serine for asparagine-38.

32. (New) A mutant SPE-C toxin comprising amino acid substitutions at tyrosine-15, at histidine-35, and at asparagine-38.

33. (New) The mutant SPE-C toxin of claim 32, comprising substitutions of alanine for tyrosine-15, alanine for histidine-35, and aspartic acid for asparagine-38.

34. (New) A mutant SPE-C toxin comprising amino acid substitutions at aspartic acid-12, at tyrosine-15, at tyrosine-17, at histidine-35, at asparagine-38, or at up to three of these amino acids.

35. (New) The mutant SPE-C toxin of claim 34, comprising substitutions of serine or alanine for tyrosine-15 and aspartic acid for asparagine-38.

36. (New) The mutant SPE-C toxin of claim 34, comprising substitutions of serine or alanine for tyrosine-17 and aspartic acid for asparagine-38.

37. (New) The mutant SPE-C toxin of claim 34, comprising substitutions of serine for tyrosine-15 and serine for asparagine-38.

38. (New) The mutant SPE-C toxin of claim 34, comprising substitutions of serine for tyrosine-17 and serine for asparagine-38.

39. (New) The mutant SPE-C toxin of claim 34, comprising substitutions of alanine for tyrosine-15.

40. (New) The mutant SPE-C toxin of claim 34, comprising substitutions of alanine for tyrosine-15, alanine for histidine-35, and aspartic acid for asparagine-38.

41. (New) The mutant SPE-C toxin of claim 34, comprising substitutions of aspartic acid for asparagine-38.

42. (New) The mutant SPE-C toxin of claim 34, comprising substitutions of alanine for aspartic acid-12.